REMARKS/ARGUMENTS

Claims 1-10 are pending. Claims 11-24 have been withdrawn. Claims 1, 3, 5, 6, 8, and 10 have been amended. Support for the amended claims can be found in the specification, and no new matter has been added.

Figs. 1, 2, 3, and 10 have been amended to delete the notation "toll center". Claims 1, 3, 6, and 8 were amended to remove the reference numbers as objected to by the Examiner. Claims 5 and 10 were amended to end with a period (.) as pointed out by the Examiner.

In the non-final Office Action, mailed June 17, 2005, claims 1, 2, 4-7, 9, and 10 were rejected under U.S.C. §102(e) as being anticipated by U.S. Patent Application No. 2003/0171134 by Doi et al., hereinafter Doi. Reconsideration of the rejected claims in view of the foregoing amendments and following remarks is respectfully requested.

Doi fails to disclose or suggest several features recited in amended claim 1, including the intensive control station, estimating the interference wave power from a plurality of radio base stations, and minimizing a sum of square errors.

The intensive control station

Claim 1 recites that the intensive control station is connected to each radio base station and connected to an adaptive antenna of each radio base station. According to one implementation, the intensive control station first determines a weight vector to minimize a sum of square errors between reception signals and desired signals for all the radio base stations which simultaneously use the same communication channel, and then sends the weight vector to the antenna of each radio base station in order to control the interference on the plurality of terminal stations altogether. Doi merely discloses an adaptive array radio base station used to vary the antenna target for a user's mobile phone. Doi is void of any teaching of an intensive control station.

Estimating the interference wave power from a plurality of radio base stations

Doi does not teach or suggest an act of estimating the interference wave power from a plurality of radio base stations. Doi discloses that "a reception power of the desired wave

can be calculated (paragraph [0179])." Doi further discloses that the interference with another base station can be reduced. However, Doi does not disclose or suggest estimating the interference wave power which each terminal station receives from a plurality of radio base stations.

Minimizing a sum of square errors

Doi does not teach or suggest an act of minimizing a sum of square errors. Doi discloses that "the weight vector is controlled so as to minimize mean square error between an output...and a reference signal...(paragraph [0164])." However, Doi does not disclose or suggest minimizing "a sum of square errors between reception signals and desired signals for all radio base stations which simultaneously use the same communication channel" as recited in claim 1.

In view of the foregoing, withdrawal of the rejection of independent claim 1 and claims 2, 4, 5, 7, 9, and 10 depending therefrom is respectfully requested.

Claim 6 also recites estimating the interference wave power from a plurality of radio base stations as recited in claim 1. For similar reasons stated above regarding claim 1, Doi fails to disclose features as recited in claim 6.

Furthermore, claim 6 recites that "determining at least a weight in the adaptive antenna of each radio base station and a transmission power of each terminal station to minimize a sum of square errors..." Doi merely discloses obtaining a reception response vector with respect to the desire user from each signal in the uplink, and based on the result, estimating the reception response vector for the downlink at the time point of transmission. Doi is void of any teaching regarding determining of each transmission power in the uplink communication. Uplink control, according to the present invention, is described on page 17, lines 9-21, "to control the interference of the plurality of base stations 102 altogether, the intensive control station 103 executes control by obtaining an evaluation index Eup of the entire uplink...the intensive control station 103 selects a combination of weight vectors for the base stations 102 and a combination of transmission powers of the terminal stations 101, with which the evaluation index Eup is minimized, thereby suppressing degradation in transmission quality due to the interference to the minimum." In addition, Doi does not discloses or suggest minimizing a sum

of square errors. Therefore, withdrawal of the rejection of independent claim 6 is respectfully requested.

Claims 3 and 8 were rejected under U.S.C. §103(a) as being unpatentable over Doi in view of JP Publication No. JP020011285163 by Kasami et al., hereinafter Kasami. Reconsideration of the rejected claims in view of the foregoing amendments and following remarks is respectfully requested.

Claim 3 is dependent on independent claim 1. As stated above, Doi fails to disclose estimating the interference wave power from a plurality of radio base stations and minimizing a sum of square errors. Doi in combination with Kasami also fail to disclose such features. Kasami merely discloses a mobile communication system that includes a mobile station, base stations, and a control station, wherein the control station controls the base stations. Doi in combination with Kasami fail are void of any teaching of estimating interference wave power and minimizing a sum of square errors.

Claim 8 is dependent on independent claim 6. As stated above, Doi fails to disclose estimating the interference wave power from a plurality of radio base stations and minimizing a sum of square errors. Doi in combination with Kasami also fail to disclose such features. Kasami merely discloses a mobile communication system that includes a mobile station, base stations, and a control station, wherein the control station controls the base stations. Doi in combination with Kasami fail are void of any teaching of estimating interference wave power and minimizing a sum of square errors.

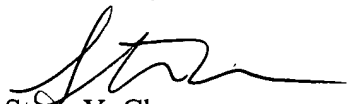
In view of the foregoing, withdrawal of the rejection of claims 3 and 8 is respectfully requested.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



Steve Y. Cho
Reg. No. 44,612

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 650-326-2400
Fax: 650-326-2422
Attachments
SYC:cl/km
60578783 v1

Inventor: Yasushi Takatori et al.
Application No.: 09/941,399
Reply to June 17, 2005 Office Action
Attorney Docket: 080974-000000US
Annotated Sheet Figure 1

CONTROL SEQUENCE OF ADAPTIVE ANTENNA CONTROL METHOD RELATED TO DOWNLINK OF FIRST EMBODIMENT

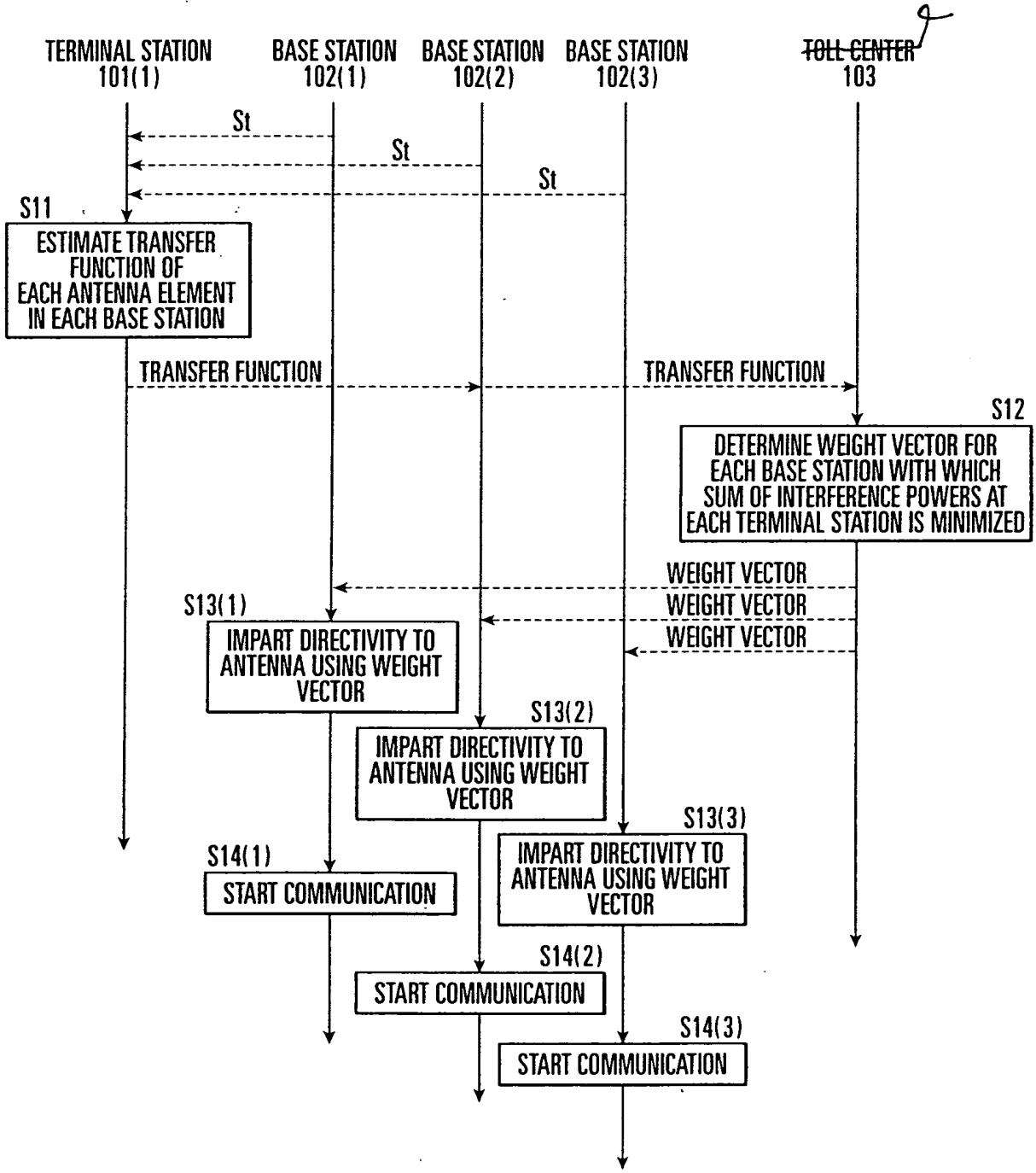


FIG. 1

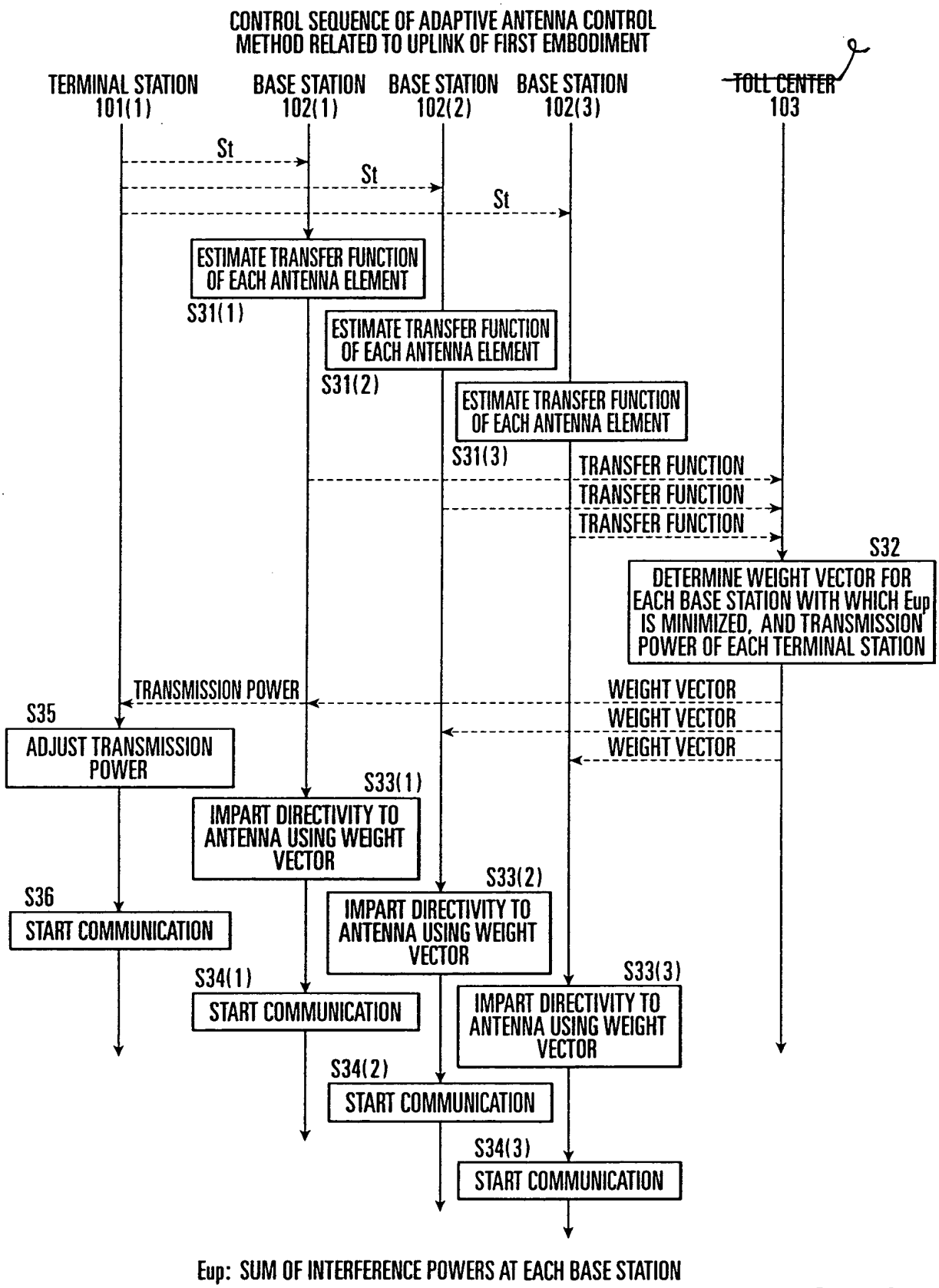

CONTROL SEQUENCE OF ADAPTIVE ANTENNA CONTROL METHOD RELATED TO UPLINK OF FIRST EMBODIMENT
TERMINAL STATION 101(1)
BASE STATION 102(1)
BASE STATION 102(2)
BASE STATION 102(3)
TOLL CENTER 103
St
St
St
ESTIMATE TRANSFER FUNCTION OF EACH ANTENNA ELEMENT
S31(1)
ESTIMATE TRANSFER FUNCTION OF EACH ANTENNA ELEMENT
S31(2)
ESTIMATE TRANSFER FUNCTION OF EACH ANTENNA ELEMENT
S31(3)
TRANSFER FUNCTION
TRANSFER FUNCTION
TRANSFER FUNCTION
S32
DETERMINE WEIGHT VECTOR FOR EACH BASE STATION WITH WHICH Eup IS MINIMIZED, AND TRANSMISSION POWER OF EACH TERMINAL STATION
TRANSMISSION POWER
WEIGHT VECTOR
WEIGHT VECTOR
WEIGHT VECTOR
S35
ADJUST TRANSMISSION POWER
S33(1)
IMPART DIRECTIVITY TO ANTENNA USING WEIGHT VECTOR
S33(2)
IMPART DIRECTIVITY TO ANTENNA USING WEIGHT VECTOR
S33(3)
IMPART DIRECTIVITY TO ANTENNA USING WEIGHT VECTOR
S36
START COMMUNICATION
S34(1)
START COMMUNICATION
S34(2)
START COMMUNICATION
S34(3)
START COMMUNICATION
Eup: SUM OF INTERFERENCE POWERS AT EACH BASE STATION

FIG. 2

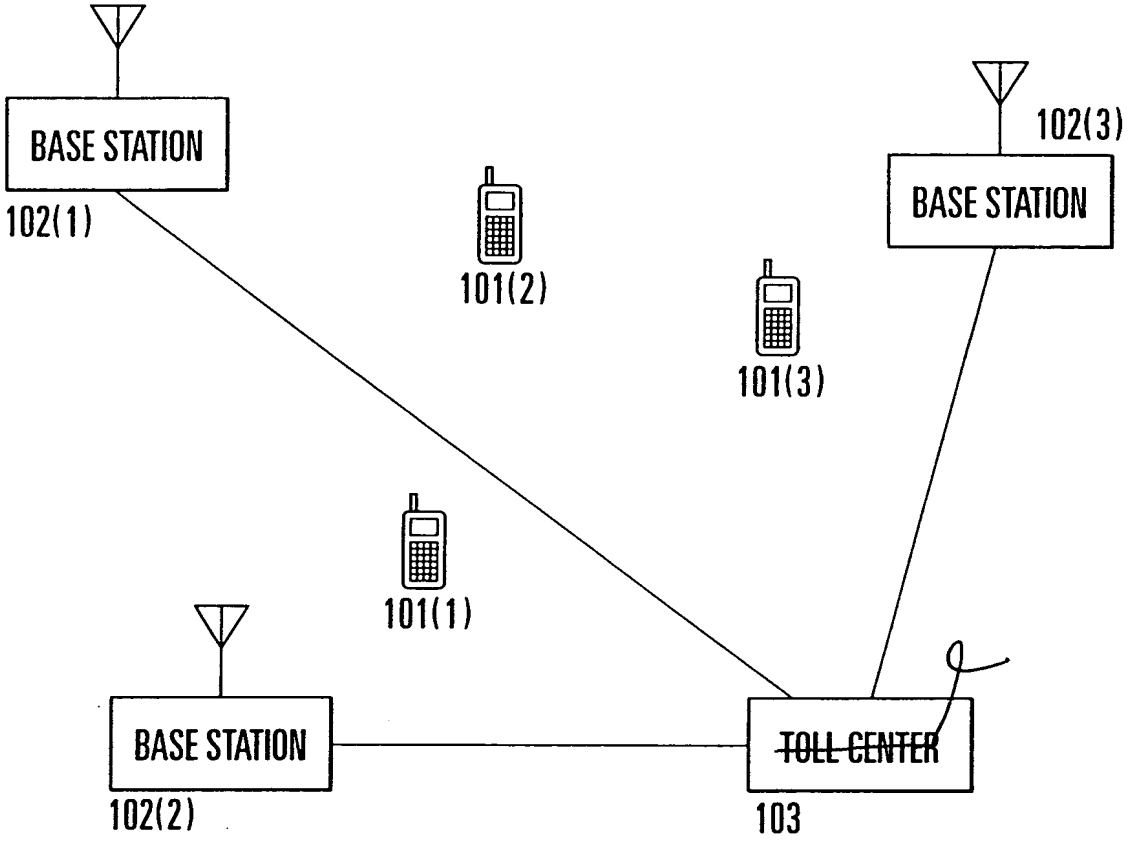

ARRANGEMENT OF COMMUNICATION SYSTEM
BASE STATION
102(1)
101(2)
102(3)
BASE STATION
101(3)
101(1)
BASE STATION
102(2)
TOLL CENTER
103

FIG. 3

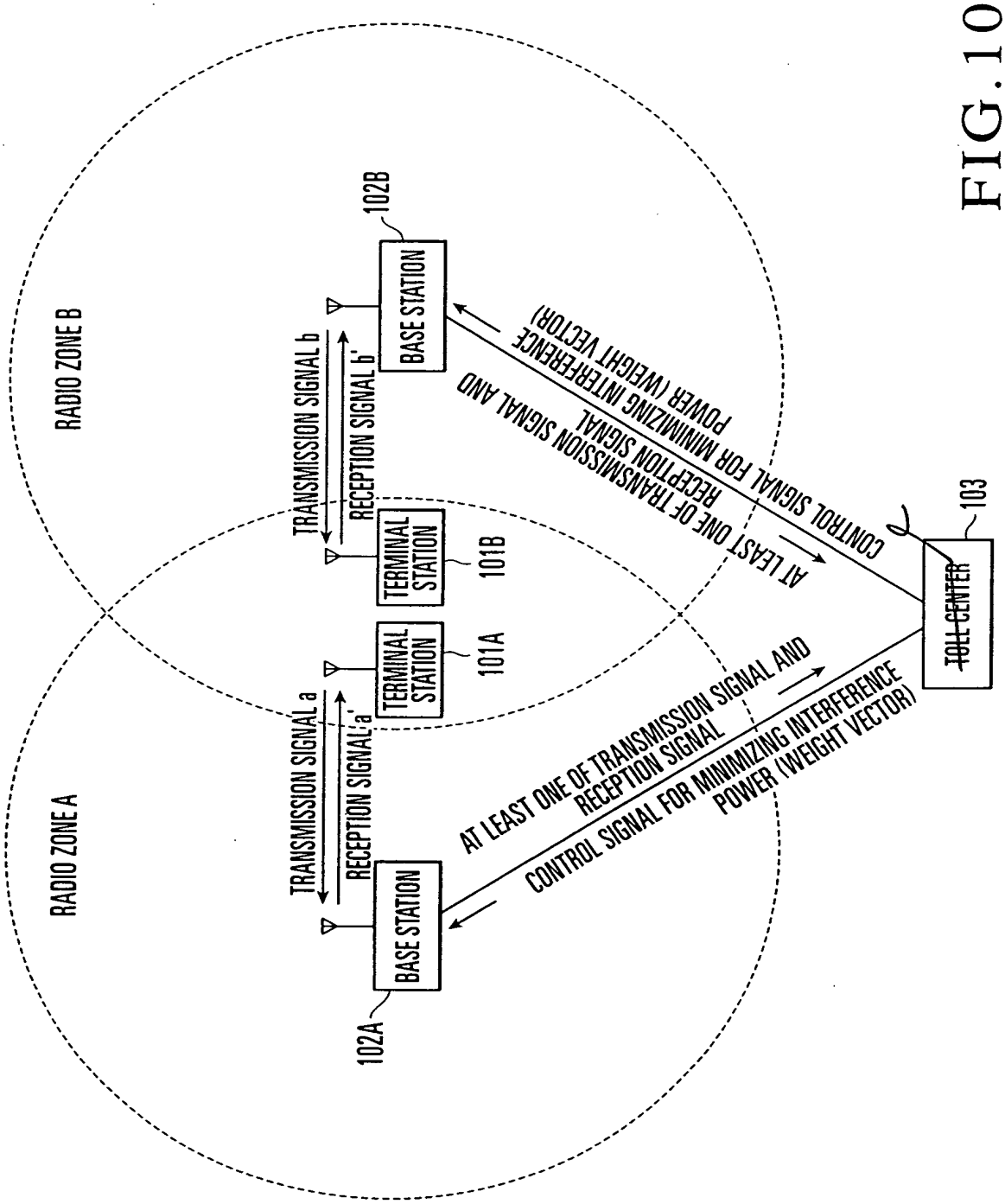

RADIO ZONE B
RADIO ZONE A
BASE STATION
102B
BASE STATION
102A
TERMINAL STATION
101B
TERMINAL STATION
101A
TRANSMISSION SIGNAL b
RECEPTION SIGNAL b'
TRANSMISSION SIGNAL a
RECEPTION SIGNAL a'
TOLL CENTER
103
CONTROL SIGNAL FOR MINIMIZING INTERFERENCE POWER (WEIGHT VECTOR)
AT LEAST ONE OF TRANSMISSION SIGNAL AND RECEPTION SIGNAL
AT LEAST ONE OF TRANSMISSION SIGNAL AND RECEPTION SIGNAL
CONTROL SIGNAL FOR MINIMIZING INTERFERENCE POWER (WEIGHT VECTOR)

FIG. 10

Amendments to the Drawings:

The attached sheets of drawings include changes to Figs. 1, 2, 3, and10. These sheets, which include Figs. 1, 2, 3, and10 replaces the original sheet including Figs. 1, 2, 3, and10.

Attachment: Replacement Sheet
Annotated Sheet Showing Changes